Mount Rushmore National Memorial, Accuracy Assessment Metadata

Identification_Information:
Citation:
Citation_Information:
Originator: U.S. Geological Survey
Originator: Department of the Interior
Publication_Date: 199810
Title: Mount Rushmore National Memorial Accuracy Assessment
Geospatial_Data_Presentation_Form: database and report
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Mount Rushmore National Memorial
Publication_Information:
Publication_Place: Denver, CO
Publisher:
USGS Biological Resources Division, Center for Biological Informatics
Online_Linkage: http://biology.usgs.gov/npsveg/moru/index.html#accuracy_assessment_info
Larger_Work_Citation:
Citation_Information:
Originator: US Dept of Interior
Originator:
National Biological Survey (aka National Biological Service)
Originator: [Now the Biological Resources Division of USGS]
Originator: and National Park Service
Publication_Date: 199411
Title: Field Assessment Procedures
Geospatial_Data_Presentation_Form: document
Edition: Final Draft
Publication_Information:
Publication_Place: Denver, CO
Publisher: USGS/BRD/Center for Biological Informatics
Other_Citation_Details:
Report prepared by the USGS Center for Biological Informatics in cooperation with Environmental Systems Research Institute, 380 New York Street, Redlands, CA.
Online_Linkage: http://biology.usgs.gov/npsveg/moru/pi_rpt.pdf#assessment
Description:
Abstract:
The accuracy assessment field work was performed in July and August, 1996 to verify the accuracy of the vegetation communities spatial data developed by the USGS-NPS Vegetation Mapping Program for Mount Rushmore National Memorial. The data points were randomly distributed stratified according to vegetation association over the project area according to protocols developed by the Program. Points were located by GPS navigation and the community information was collected at the point, without knowledge of the attributes of the vegetation spatial data. The data points were compared to the attributes of the polygon in which they were contained. Attributes of the polygons or accuracy assessment points that did not match were changed during later analysis due to errors in the AA methodology or map attribution errors. A contingency table was completed from the final dataset.
Purpose:

These data were necessary assess the mapping effort in addition to meeting the requirements of the mapping program.
Supplemental_Information:
All codes used in the digital file are referenced by the look-up table that accompanies this file. The look-up table is called veg.lut. It contains both the common name and latin names of the vegetation types.
Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 199607
Ending_Date: 199608
Currentness_Reference: Ground Condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: None planned
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -103.5
East_Bounding_Coordinate: -103.38
North_Bounding_Coordinate: 43.9
South_Bounding_Coordinate: 43.8
Description_of_Geographic_Extent: Mount Rushmore National Memorial - Black Hills, South Dakota, USA
Keywords:
Theme:
Theme_Keyword_Thesaurus: none
Theme_Keyword: National Park Service
Theme_Keyword: U.S. Geological Service
Theme_Keyword: Center for Biological Informatics
Theme_Keyword: land cover
Theme_Keyword: vegetation
Theme_Keyword: alliance
Theme_Keyword: association
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: Mount Rushmore National Memorial
Place_Keyword: Black Hills
Place_Keyword: South Dakota
Place_Keyword: USA
Taxonomy:
Keywords/Taxon:
Taxonomic_Keyword_Thesaurus: None
Taxonomic_Keywords: vegetation classification
Taxonomic_Keywords: Standardized National Vegetation Classification System
Taxonomic_Keywords: alliance
Taxonomic_Keywords: community association
Taxonomic_Keywords: Plant Communities
Taxonomic_Classification:
Taxon_Rank_Name: Kingdom
Taxon_Rank_Value: Plantae
Applicable_Common_Name: plants
Access_Constraints: None
Use_Constraints:
Any person using the information presented here should fully understand the data collection and compilation procedures, as described in these metadata, before beginning analysis. The burden for determining fitness for use lies entirely with the user. For purposes of publication or

dissemination, citations should be given to the U.S. Geological Survey
and the National Park Service.
Point_of_Contact:
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Contact_Facsimile_Telephone: 303-202-4219 (org)
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Browse_Graphic:
Browse_Graphic_File_Name: http://biology.usgs.gov/npsveg/moru/images/moruaa.gif
Browse_Graphic_File_Description:
255 kbyte file showing vegetation associations and location of accuracy assessment points
Browse_Graphic_File_Type: GIF
Native_Data_Set_Environment: UNIX-ARC\INFO

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
The attributes for the accuracy assessment were recorded in the field
in July and August, 1996. Vegetation associations were identified based
on thefield key and plant identification. If additional communities were
found within a 50 meter radius of the plot center, they were recorded
as well. During the analysis, it was concluded that some attributes
were in error and changed to match the mapped attributes. This was done
by examination of the aerial photographs under stereoscopic view. The
attributes were in error due to 1) spatial error in the GPS derived
coordinates (4-8 meters), 2) change of vegetation community due
to temporal changes, or mis-identification of the community on the ground.
Logical_Consistency_Report:
All attributes are codes that correspond to vegetation communities and have been checked for
typographical and logical errors.
Completeness_Report: All points were collected and analyzed.
Positional_Accuracy:
Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
The points were located using a military-style GPS receiver (PLGR), which has a published accuracy of 4-8 meters.
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: Not applicable
Lineage:
Methodology:
Methodology_Type: Field
Methodology_Identifier:
Methodology_Keyword_Thesaurus: None
Methodology_Keyword: Accuracy Assessment
Methodology_Description:
To assess the thematic accuracy of the vegetation map we conducted an accuracy assessment that allows the user of the digital information an additional perspective upon the data. The final product attempts to achieve the 80% per class accuracy required for this product. Not all mapping units were tested for accuracy. Since the final map contains two separate classification systems, only the mapped areas that fall under the NVCS were included in the accuracy assessment. Areas such as agricultural and undescribed vegetation units and other areas classified using Anderson Level II classification were eliminated from the sample process. Besides excluding the Anderson classified polygons we also Excluded vegetation polygons visited and sampled during either the vegetation description or verification phase that were small enough to confidently say were entirely correct. These were typically riparian polygons in Hell Canyon. These small polygons were eliminated from a site visit in the random selection process but were included in the final accuracy assessment matrix. The remaining areas for sampling were then stratified and sampled according to the number of polygons in each class and the area occupied by each class. Field Procedure: The field crew consisted of two botanists that were Not involved in any part of the previous work on the park. This crew either worked together or separately depending upon local conditions. Both botanists were supplied with a list of points to visit, a field key for map class identification, field data forms, and a GPS to navigate to each site forms. Both crew members worked "blind', meaning that neither one was aware of the existing mapped class designations. Upon arriving at each site, the crews scanned a wide area around the immediate location and observed any local variation in the plant associations. Using the key, the crew then assigned a plant association to the accuracy point. In cases where the variation was significant the crew made a "best fit" judgment to the class name. In addition, other associations in the area and those that might be confused with other plant associations were also noted on each field form. Site Selection: The stratified random selection of accuracy assessment sites was done on the original map classes. The x and y coordinates of each accuracy point were derived from the original vegetation coverage. The coverage was gridded into 50 x 50 meter cells using ArcGrid. A 50-meter grid was chosen because it approximates the minimum mapping unit (MMU) for the project. Using a random number generator, we then

re-selected the appropriate number of grids/samples from each class and put them into a separate grid. Additional points were selected for each class over the required number to allow the field crew some latitude in case some sites were inaccessible. The reselected cells where then converted into a point coverage. The x and y coordinate for each point was then transferred to an ascii file. This coordinate file was then used by the field team along with a GPS PLGR unit to locate the position in the field. The point coverage with the accuracy locations and the assigned map unit code are included as a digital coverage. Data Analysis: Due to the inherent heterogeneity of many natural systems, many of the map class determinations to be incorrect. However, when considered in the larger context were correct. To address this issue we attempted to include a 'fuzzy' protocol in analyzing the field accuracy data. For example, when the field crew visited a site they noted not only the appropriate vegetation association designation for the immediate area but also other associations present. When field codes where then compared with the mapped class the point was designated correct if it agreed with any of the associations noted on the field form.

Source_Information:
Source_Citation:
Citation_Information:
Originator: USGS-Biological Resouces Division
Originator: U.S. National Park Service
Originator: Department of the Interior
Publication_Date: 199411
Title: Accuracy Assessment Procedures, NBS/NPS Vegetation Mapping Program
Geospatial_Data_Presentation_Form: document
Publication_Information:
Publication_Place: Denver, CO
Publisher:
USGS, Biological Resources Division, Center for Biological Informatics
Other_Citation_Details:
Prepared by: Environmental Systems Research Institute; Redlands, CA and National Center for Geographic Information and Analysis, University of California, Santa Barbara, CA and The Nature Conservancy, Arlington, VA under contract from U.S. Department of the Interior Biological Resources Division and National Park Service.
Type_of_Source_Media: electronic document
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 199411
Ending_Date: Present
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: Accuracy Assessment Procedures Document
Source_Contribution: This document established the procedures and protocols for the accuracy assessment at Mount Rushmore National Memorial.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey
Originator: Department of the Interior

Publication_Date: 199809
Title:
Mount Rushmore National Memorial Spatial Vegetation Data: Cover type / Association level of the National Vegetation Classification System
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Mount Rushmore National Memorial
Publication_Information:
Publication_Place: Denver, CO
Publisher:
USGS, Biological Resources Division, Center for Biological Informatics
Other_Citation_Details:
Created in large part by Environmental Systems Research Institute, Inc. Redlands, CA under contract rom USGS/BRD/CBI.
Type_of_Source_Media: Disc
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19950725
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation:
Spatial data of vegetation communities for Mount Rushmore National Memorial.
Source_Contribution:
The vegetation spatial data were tested for accuracy with the AA data.
Process_Step:
Process_Description:
The accuracy assessment field work was performed in July, 1995 to verify the accuracy of the vegetation communities spatial data developed by the USGS-NPS Vegetation Mapping Program for Mount Rushmore National Memorial. The data points were randomly distributed stratified according to vegetation association over the project area according to protocols developed by the Program. Points were located by GPS navigation and the community information was collected at the point, without knowledge of the attributes of the vegetation spatial data.
Source_Used_Citation_Abbreviation: Spatial data of vegetation communities for Mount Rushmore National Memorial.
Source_Used_Citation_Abbreviation: Accuracy Assessment Procedure Document
Process_Date: 199507

Spatial_Data_Organization_Information:
Indirect_Spatial_Reference:
Mount Rushmore National Memorial is in Pennington County and is part of the south eastern Black Hills. The memorial shares its southwest boundary with the Norbeck Wilderness Preserve. All other boundaries are shared with the Black Hills National Forest.
Direct_Spatial_Reference_Method: Point
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 13
Transverse_Mercator:
Longitude_of_Central_Meridian: -105

Latitude_of_Projection_Origin: 0
False_Easting: 500000
False_Northing: 0
Scale_Factor_at_Central_Meridian: .9996
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: Coordinate Pair
Coordinate_Representation:
Abscissa_Resolution: 1
Ordinate_Resolution: 1
Planar_Distance_Units: Meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 297.257

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
The system is organized hierarchically to support conservation and resource stewardship applications across multiple scales. The upper levels of the hierarchy are based on the physical form or structure of the vegetation (physiognomy) and have been refined from the international standards developed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). The two most detailed levels of the hierearchy are based on the species composition of the existing vegetation (floristics) and reflect the phyto-sociological standards that were originally developed by European ecologists. The vegetation classification is continually advanced through the collection and analysis of new field data and will be greatly strengthened during the course of the NBS/NPS mapping efforts. National Park Service/Biological Resources Division Vegetation Inventory and Mapping Program for Mount Rushmore National Memorial, South Dakota, Final Community Association Classification, May 1, 1998. Alliance/Community HB=Bur Oak / Ironwood Forest PB=Ponderosa Pine Bur Oak Woodland PH=Paper Birch / Beaked Hazel Forst PJ=Ponderosa Pine / Common Juniper Woodland PL=Ponderosa Pine / Little Bluestem Woodland PR=Ponderosa Pine / Rough Leafed Rice Grass Woodland PW= Ponderosa Pine / Bearberry Woodland SS=Stram Side Shrubland WM=Wooly Sedge / Blue Joint Herbaceous Vegetation (Wet Meadow).
Entity_and_Attribute_Detail_Citation:
Grossman, D. Et al. 1994. National Park Service / National Biological Service Vegetation Mapping Project, National Vegetation Classification System 209 pp.

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Distribution_Liability:
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Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: HTML
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://biology.usgs.gov/npsveg/moru/index.html#accuracy_assessment_info
Fees: None

Metadata_Reference_Information:
Metadata_Date: 20011022
Metadata_Review_Date: 20060905
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Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator
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Metadata_Standard_Name: FGDC-STD-001.1-1999 Content Standard for Digital Geospatial Metadata, 1998 Part 1: Biological Data Profile, 1999
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Extensions:
Online_Linkage: http://biology.usgs.gov/fgdc.bio/bionwext.txt
Profile_Name: Biological Data Profile FGDC-STD-001.1-1999